

Application No. 09/773,106
Amendment and Restriction Requirement dated July 15, 2004
Reply to Office Action dated June 16, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) An image-sensing device comprising:
a plurality of pixels that generate an electric signal proportional to an amount of incident light and then output the electric signal as an analog signal that is natural-logarithmically proportional to the amount of incident light; and
a level adjuster that adjusts a level of the electric signal output from the pixels by adjusting according to the electric signal output from the pixels a bias voltage fed to the pixels.
2. (Original) An image-sensing device as claimed in claim 1, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.
3. (Withdrawn) An image-sensing device as claimed in claim 1, wherein the pixels each comprise:
a photosensitive element receiving at a first electrode thereof a direct-current voltage;
a transistor having a first electrode, a second electrode, and a control electrode, the transistor having the first and control electrodes thereof connected to a second electrode of the photosensitive element so that electric charge output from the photosensitive element flows into the transistor, the transistor receiving at the second electrode thereof a direct-current voltage so that the transistor operates in a subthreshold region,
wherein the level adjuster adjusts the level of the electric signal output from the pixels by adjusting the direct-current voltage applied to the second electrode of the transistor.
4. (Withdrawn) An image-sensing device as claimed in claim 3, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.

5. (Withdrawn) An image-sensing device as claimed in claim 3, wherein the level adjuster produces the direct-current voltage applied to the second electrode of the transistor by subtracting from a predetermined voltage a voltage according to the electric signal output from a plurality of pixels.

6. (Withdrawn) An image-sensing device as claimed in claim 5, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.

7. (Withdrawn) An image-sensing device as claimed in claim 5, wherein the level adjuster comprises:

an integrator circuit for integrating the voltage according to the electric signal output from the plurality of pixels; and

a subtracting circuit for subtracting from the predetermined voltage the voltage integrated by the integrator circuit,

wherein a voltage output from the subtracting circuit is fed to the second electrode of the transistor.

8. (Withdrawn) An image-sensing device as claimed in claim 7, wherein the level adjuster further comprises:

a holding circuit for holding the voltage output from the subtracting circuit; and

a switch connected between the subtracting circuit and the holding circuit.

9. (Withdrawn) An image-sensing device as claimed in claim 8, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.

10. (Original) An image-sensing device as claimed in claim 1, wherein the pixels each comprise:

a photosensitive element receiving at a second electrode thereof a direct-current voltage;

a transistor having a first electrode, a second electrode, and a control electrode, the transistor having the second electrode thereof connected to a first electrode of the

photosensitive element so that electric charge output from the photosensitive element flows into the transistor, the transistor receiving at the first and control electrodes thereof direct-current voltages individually so that the transistor operates in a subthreshold region,

wherein the level adjuster adjusts the level of the electric signal output from the pixels by adjusting the direct-current voltage applied to the control electrode of the transistor.

11. (Original) An image-sensing device as claimed in claim 10, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.

12. (Original) An image-sensing device as claimed in claim 10, wherein the level adjuster produces the direct-current voltage applied to the control electrode of the transistor by subtracting from a predetermined voltage a voltage according to the electric signal output from a plurality of pixels.

13. (Original) An image-sensing device as claimed in claim 12, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.

14. (Original) An image-sensing device as claimed in claim 12, wherein the level adjuster comprises:

an integrator circuit for integrating the voltage according to the electric signal output from the plurality of pixels; and

a subtracting circuit for subtracting from the predetermined voltage the voltage integrated by the integrator circuit,

wherein a voltage output from the subtracting circuit is fed to the control electrode of the transistor.

15. (Original) An image-sensing device as claimed in claim 14, wherein the level adjuster further comprises:

a holding circuit for holding the voltage output from the subtracting circuit; and

a switch connected between the subtracting circuit and the holding circuit.

Application No. 09/773,106

Amendment and Restriction Requirement dated July 15, 2004

Reply to Office Action dated June 16, 2004

16. (Original) An image-sensing device as claimed in claim 15, wherein the pixels are arranged in a matrix so as to form an area sensor as a whole.